LBT Observing Log: 2025 04 05 UT

Observers: Olga Kuhn
Partner Observer: Dominic Rowan
Telescope Operator: Steve Allanson

Plan:

Like last night:

Highest priority targets are LUCI/LBC. We'll adjust with the weather with PEPSI and MODS as backups.

Plan to start with MODS, switch to LUCI or LBC if conditions hold

Summary:

There was no chance to open, and I ran the remaining LUCI darks, except those for the Uranus occultation which will need to use the exact same subwindow as the observation. I ran the remaining LUCI spectroscopic cals: G200+HK and G210+J flats and arcs, though we had a question about the latter (see below).

Repeated the MODS cals from last night, since the MODS1B Q2 even-column bias was in good shape tonight (chamber temp was >0 C, last night it was -2 C and it had gotten even colder earlier).

Generated the Uranus occultation script and ran through the steps the observer would need to make: the manual setting of LUCI1's FW2 and setting up the subwindow.

Issues:

- Switch 10 flakiness on LUCI one. Worked around by Glenn's SW update to have both the Observer Panel and the IMGUI ignore FW2, and observer will move FW 2 with MCU engineering GUI.

- M2.BC found to have frozen (IT 9179) - did a soft reboot via the raritan and reset the 4-digit index number. This is pretty rare and random, but we should swap in the spare next week.

- MODS1B Q2 even-column bias level is back to "normal", matching the odd-column better. Chamber air Temp has been >0 C since ~2pm this afternoon, whereas last night it was around -2 C.

- Debris at lower right corner of MODS1B and MODS1R images (Q2) that was seen last night is gone.

- LUCI1 negative countdown with "exposure end message not received/journalizer may have disconnected" message. Filed new IT 9310, although it sounds similar to closed IT 9012.

- LUCI2 Ne lamp did not come on during script execution. I did not try, yet, to retake these manually.

- With G210, I noticed a large, x~300-400 pix, shift between the LUCI1 and LUCI2 arc lamp spectra. It is not only for G210@J, but at H also. Not seen with G200. Sent an email to Dave to ask about this.

Weather:

Unstable weather conditions. Although it looked promising around the time of the 3:30pm daily planning meeting, with some sun and little snow accumulation, it started to snow heavily within the next couple of hours and Steve has called the night due to the snow accumulation on the building.

Overview (times are given in UT):

~01:00 - soft-reboot of M2.BC to recover it, as it has frozen (IT 9179).
01:19 modsSimSnap —

LUCI - 2 quick darks - OK

Calibrations: MODS

I'll repeat the biases & flats taken last night, although neither the dust speck nor the MODS1B Q2 even-column bias instability should have rendered last night's slit flats unusable. The slitless pixel flats would have been affected by the dust.

mods#c.20250405.00NN.fits

	m1b	m1r	m2b	m2r	Comment1	Comment2

Bias 8K	3-7	3-7	3-7	3-7		mods1b Q2 is normal
Bias 3K	8-12	8-12	8-12	8-12		
Dual Grating 1" slit flats	13-15 16-18	13-15 16-18	13-15 16-18	13-15 16-17	3rd red flat not taken, though script ended and did not hang.	
Bin12 biases	19-23	19-23	19-23	18-22		
Dual Grating 1" slit flats (m2r VFLAT series only)				23-25	repeat m2r VFLAT 1" slitflats, manually since instconfig has not yet been changed.	
Bin 12 dual grating slitless pixflats	24-28 29-33	24-28	24-28 29-33	26-30		
Bin 12 0.8" dual grating slit flats	34-36 37-39	29-31 32-34	34-36 37-39	31-33 34-36		
Bias Bin12 (repeat)	40-44	35-39	40-44	37-41		
Bias 3K	45-49	40-44	45-49	42-46		
Bias 8K	50-54	45-49	50-54	47-51		

MODS1R fitsflush needed to get 44 or 45 to 49.

Calibrations: LUCI

Darks for OSU_SCAT and UVa_BCD_LUCI.

Darks for UVa_URANUSOCC need to be done after the observation, using exactly the same region of the detector that was covered by the subwindow.

Flats/Arcs for OSU_SCAT and UVa_URANUSOCC

Flats/arcs for OSU_XMDs_LUCI/UM_XMDs_LUCI, and UVa_BCD_LUCI, which all use the same configuration, have been done already, 20250403, although the LUCI1 FW2 position is not correct in the luci1 headers, due to the problem with a switch.
Darks for OSU_XMDs_LUCI/UM_XMDs_LUCI were also done already, last night.

Darks:

luci#.20250405.00NN.fits

LUCI1	LUCI2	DIT	NDIT	readmode	savemode	Program
3-7	3-7	10	12	LIR	integrated	OSU_SCAT-LUCI/cals
8-12	8-12	100	3	MER	integrated	
13-17	13-17	5	2	LIR	integrated	
18-27	18-27	9	5	LIR	integrated	UVa_BCD_LUCI savemode as well as NDIT really don't have to match the observations. But I had to reload the script to get the LUCI1 long darks, and so I changed savemode to normal to be entirely
28 **	28-32	240	1	MER	integrated	
29-38		15	4	LIR	integrated	
39-48	33-42	15	4	LIR	integrated	
49-58	43-52	240	1	MER	normal	

						consistent with observation.

** On the 2nd 240-s dark, which was to be luci1 0029, there was a negative countdown, with the error below. I aborted the exposure via the RMGUI and the LUCI1 script jumped to the next set of images. I'll return to retake the missing LUCI1 240-sec darks.

2025.04.05 03:10:23 u | user medium | robs2.mo | Engineer | ObserverPanel@m | RMIInstrumentStatusPanelImpl.java#action(354) | Exposure end message not received. Journalizer may have disconnected.

Flats and Arcs:

Note - I had not checked field alignment before taking these…but images luci1 97 and luci2 91 are quick checks with mask in turnout and BrG (luci1 145 & luci2 112 also) and, see below screenshot, the alignment does not look too bad. I made no correction based on this, but I do think there 400-pix shift in G210+J is odd.

- Will check LUCI2 G210+J spectral shift again… still there and ~300-400 pix. Present for different orders/wavelengths of G210. With the G200 grating, arc lines fall nearly at the same X position for LUCI1 and LUCI2 spectra.
- On 20250403 - between the calibrations and sky spectra, there's a there's a 60 pix shift in Y. May try to retake the zJ cals if there's a chance.

L1 +	L2	Mask	Grating	Lambda_Cen	Filter	Program
59-63 64-68 69-70 71-72 Ne 73-74 Ar 75-76 Xe	53-57 58-62 63-64 65-66 Ne(x) 67-68 Ar 69-70 Xe	1"	G200	1.93	HKspec	OSU_SCAT Ne in LUCI2 did not come on.
77-81 82-86 87-88 89-90 Ar 91-92 93-94 Xe	71-75 76-80 81-82 83-84 Ar 85-86 87-88 Xe	1"	G210	1.25	J	G210+J - from the arcs, there's quite a shift in wavelength between L1 vs L2. Will examine/repeat (may be IT 7487)**
94-95 Ar	89-90 Ar	1"	G210	1.25	J	toggled

						G210-MIRR-G210 , but see the same shift 400-pix
skipping for now — I should have done the imaging flats before the spectroscopic ones, to avoid persistence in the imaging flats.						
		-	MIRR	-		OSU_SCAT (Imaging)
						UVa_URANUSOCC

+ LUCI1 FW2 is at HKspec. It was in blind, and I moved -194 steps * 2, i.e. 2 positions up to HKspec. HKspec should trigger all switches: 7,8,9 and 10, but 10 is flaky and did not come on. 7,8 and 9 are triggered. Unfortunately, the headers will not reflect the true statue of LUCI1 FW2 (they'll read "blind"), but the filter is correct, and the detector focus is 383.
For the G210+J flats, the headers will be correct (J does not use the flaky switch).

~05:30 - Dave came online to obtain flexcal verification datasets.

08:30 - I rebooted the MODS1 and MODS2 computers, proactively - no serious problems but a few glitches in the past few nights.

** I examined this issue with the G210 cals and tried the troubleshooting measures recommended for IT7487, but to no avail. The LUCI2 G210 calibrations taken tonight match those taken a few weeks ago, but there is a wavelength shift between these and the LUCI1 spectra at both H and J.

12:45 Put both MODS to sleep, and put the LUCIs in their end-of-night configuration.